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EXAMINER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 12202006

Application Number: 10/632,462  
Filing Date: August 1, 2003  
Appellant(s): Knopp, Carl

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Patrick J. Zhang  
For Appellant

**SUPPLEMENTAL  
EXAMINER'S ANSWER**

This is in response to the appeal brief filed October 10, 2006.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) *Status of Claims***

The statement of the status of claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

No amendments after final have been filed.

**(5) *Summary of Claimed Subject Matter***

The summary of claimed subject matter contained in the brief is correct.

**(6) *Grounds of Rejection to be Reviewed on Appeal***

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

### **GROUND OF REJECTION NOT ON REVIEW**

The following grounds of rejection have not been withdrawn by the examiner, but they are not under review on appeal because they have not been presented for review in the appellant's brief.

Claims 1-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 and 27-34 of copending Application No. 10/124,891. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent application "anticipate" the instant application claims. Accordingly, the instant application claims are not patentably distinct from the patent application claims. Here, the patent application claims require elements A, B, C, and D while instant application claim 1 only requires elements A, B, and C. Thus it is apparent that the more specific patent application claims encompass the instant application claims. Following the rationale in *In re Goodman* cited in the preceding paragraph, where applicant has once been granted a patent containing a claim for the specific or narrower invention, applicant may not then obtain a second patent with a claim for the generic or broader invention without first submitting an appropriate terminal disclaimer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### **WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner:

Claims 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-5, 7- 9, 11-13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Pflibsen et al

Claims 1-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 5,966,157. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to the artisan of ordinary skill in the art to employ the patented eye tracker with a laser surgical system.

#### **(7) *Claims Appendix***

The copy of the appealed claims contained in the Appendix to the brief is correct.

#### **(8) *Listing of Evidence Relied Upon***

The following is a listing of the prior art of evidence (e.g. patents, publications Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

Number  
(Title)

Name

Date

4,848,340	Bille et al	July 18, 1989
4,901,718	Bille et al	February 20, 1990
5,090,798	Kohayakawa	February 25, 1992

**(9) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5, 7, 9, 11, and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bille et al. ('340).

Claim 1 requires inter alia, four elements: a laser; an imaging system; a detector; and a processor. Similarly claim 11 requires inter alia, five elements making a beam of light; forming a real time image; measuring a position generating a second electrical signal and transmitting a stabilized beam. It is further noted that both claims 1 and 11 are comprising-type claims, and as such are open ended, allowing references or combinations disclosing elements other than those specifically recited in the claims to be read thereon.

Concerning claim 1, with regard to the laser, there appears to be no dispute regarding Bille et al. ('340) containing this element, thus it will not be discussed further. Regarding the imaging system, "an imaging system forming an image of a natural tissue structure, the natural tissue structure being proximal to the site" is claimed. In order to properly evaluate the meaning of this phrase, particularly with regard to the language in dispute (i.e. the term "natural tissue structure", as referred to e.g. in the paragraph bridging pages 4 and 5 of the Remand), the meaning of this language must be first determined. As is well understood, an applicant may be

his or her own lexicographer but, the only reference to the term “natural tissue structure” per se is in the independent claims, however, paragraph [0044], on page 18 of the originally filed disclosure, discusses “any natural eye feature located in proximity of and structurally contiguous to the target site will serve as the tracking landmark”. The same paragraph also specifically mentions the optic disk, vessel configurations, and the limbus as suitable for the landmark. The term “limbus” is defined as “the edge boarder, or fringe of a part.” (Stedman’s Medical Dictionary, 26th Edition), while the limbus of the cornea is defined as “the margin of the cornea overlapped sclera, corneal margin, sclerocorneal junction.” (Stedman’s Medical Dictionary, 26th Edition). The imaging system of Bille et al. (’340) includes the elements 58, 56, 70, 72a, and 72b, illustrated in Figure 2 of Bille et al. (’340), acts on the light produced by diodes 66 and reflected off of the cornea (a natural tissue structure), along path 68 (see column 5, line 45 to column 6, line 4). The examiner emphasizes here that the image produced by the imaging system described above is from the entire field of view of the system, thus while the image may include at least some of the artificial structures which are produced to form grid 60 of Bille et al. (’340), it must include the intervening unmodified cornea (the “natural tissue structure”), as well as portions of the cornea outlying the “grid” as will be set forth in more detail later. It is noted that while the specification discusses a natural “feature” this particular terminology is judiciously avoided with respect to the claims and arguments directed thereto, both in the Brief on Appeal and the remarks set forth in the response filed September 12, 2005. The ordinary and customary meaning of the term “structure” is “a tissue or formation made up of different but related parts” (Stedman’s Medical Dictionary, 26th Edition). The ordinary and customary meaning of the term “feature” is “a prominent or distinctive aspect, quality, or characteristic” (the American Heritager

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Dictionary, 1982; there is no definition of the term “feature” in Stedman’s Medical Dictionary, 26th Edition). Clearly the term structure is intended to cover a certain tissue broadly {see for example the penultimate sentence in paragraph [0084] on page 27 of the originally filed disclosure, which refers to “the structures behind the cornea (iris, lens, etc.)”}, while the term “feature” relates to e.g. the limbus, which is a distinct characteristic of the structure known as the cornea. Thus the claimed invention to which the reference is applied merely requires that the tissue be imaged, not the “landmark” discussed in paragraph [0044], although the comprising-type claim does encompass any such landmark may also be imaged as well. Therefore, it is clear that appellant’s broadly cast claims, which merely require that a “structure” rather than the more narrow “feature” be imaged fairly encompass the imaging of e.g. the cornea.

While the examiner feels that this is a full and complete explication of the manner in which clearly shows that the claims at bar read on at least the imaging system aspect of the claims to which it is applied, there are some other aspects of Bille et al. (’340), with respect to the instant claims that bear mention. It is not disputed that Bille et al. (’340) also teach, in addition to tracking the “grid” on the eye, tracking the eye based on a reference provided by either the eye’s symmetry axis (see, the originally filed disclosure, page 10, lines 17-19). However, it is respectfully submitted that Bille et al. (’340) also teach that the tracking can occur whether “the reference alignment is made directly on the visual axis of the eye, or on the visual axis as determined by its relationship with the eye’s axis of symmetry.” (see column 3, lines 4-7). With regard to this admission on the part of applicant the examiner notes that the corneal apex is a “natural tissue structure” and as such the use of this structure to stabilize the beam fulfills the claim language as well. The foregoing aside, examiner further respectfully notes that



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one of ordinary skill in the art is an ocular surgeon, a profession requiring not only 12 years of primary and secondary school, but 4 years of college, 4 more years of medical school, and additional years as an intern before qualifying as an ocular surgeon, thus the level of skill of one of ordinary skill in the art is very high. The determination of the axis of symmetry of the eye in a patient that is unwilling or unable to cooperate is discussed more fully in column 6, lines 23 to column 7, line 21, of Bille et al. ('340). In lines 50-61 in particular, a scanning along lines from the sclera, the iris and the pupil is performed. However, to view the iris, requires the light pass through the clear part of the eye known as the cornea, thus transitioning from the sclera to the cornea necessarily requires traversing the boundary thereof. i.e. the limbus, as set forth above, the limbus is one of the preferred features tracked by the instant device. Further, as a plurality of scans are desired, to provide greater precision (see column 6, lines 62-68), and as the relative position of the eye with respect to the scan line must be known for any meaningful increase in precision to be achieved, one of ordinary skill in the art would readily understand that when performing this procedure on the unrestrained eye the eye must be tracked by matching the intensity variations of the scan line associated with the features such as the sclera, [limbus], iris, and pupil (recall that this procedure is preparatory to determining the offset between the visual axis and the axis of symmetry, more fully explained in column 8, lines 19-43, thus the reflection of the corneal apex cannot be used to determine the relative location of these multiple scan lines on the moving eye). Thus tracking the limbus by the device, at least when determining the offset of the visual and symmetric axes of the eye is taught by Bille et al. ('340).

The third element of claim 1 is the detector having the image of the structure formed thereon and generating a first electrical signal in response to the image of the structure, the first

signal being related to the position of the structure. Examples of appellant's preferred embodiment for such a detector include "linear position sensing detectors" (see originally filed disclosure, page 18, line 10, paragraph [0044]). It is the examiner's view that the "linear diode 76" of Bille et al. ('340), (see column 6, lines 4-10), constitutes such a linear position sensing detector. The fourth element of claim 1 is the processor adapted to generate a second signal stabilizing the beam of treatment light energy. This element reads on the "comparator 28" taught at column 6, lines 11-22: "... linear diode is operatively connected to comparator 28. Through this connection, information concerning the movement of grid 60 can be transmitted to comparator 28 for comparison with the signal representative of the reference alignment. Comparator 28 then generates an error signal proportional to the difference between the actual position of the grid 60 as sensed by the linear diode 76, and the desired position of the grid 60 in its reference alignment. This error signal is used by the fine tuner 24 to guide laser beam 64 in a manner that reduces the error signal to null."

With regard to claim 11, it is the examiner's view that the operation of the laser of Bille et al. ('340) constitutes the "making..." step; collecting the light from diode array 66 with the optical system as set forth above with respect to claim 1 constitutes the "forming..." step; processing the output of the linear diode 76 using the comparator as set forth above constitutes the "measuring..." step; producing the signal the is output to the fine tuner 24 as set forth above constitutes the "generating..." step and the disclosure of the use of the laser for ocular surgery, which surgery includes surgery that alters the refraction of the cornea constitutes the "transmitting..." step.

Bille et al. ('340) instructs the artisan of ordinary skill to use the system set forth therein with the system described in Bille et al. ('718).

As appellant has elected to argue only the limitations of the independent claims with regard to this rejection, it is believed the foregoing constitutes a clear and complete delineation of the rationale the examiner has employed in asserting the Bille et al. ('340) reference against the instant claims to which it by itself is applied under section 102(b) of the statute.

Claims 1-7, 9, 11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bille et al. ('340) in combination with Bille et al. ('718). Bille et al. ('340) teaches an eye tracking laser surgical device which will track the eye in X-, Y-, and Z-directions, including a processor, a detector, a laser, a display, and an imaging system, as set forth above. Bille et al. ('718) teaches a laser redirecting system to keep the surgical laser trained on the eye as the eye moves, including steering means for the X- and Y- directions and a focusing means. It would have been obvious to the artisan of ordinary skill to employ the laser steering device as taught by Bille et al. ('718) in the device of Bille et al. ('340), since Bille et al. ('340) specifically say to do so, and to employ an analog processor rather than a computer, since analog processors respond more quickly than digital processors, official notice of which is hereby taken, thus producing a device such as claimed.

Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bille et al. ('340) in combination with Bille et al. ('718) as applied to claims 1 and 11, and further in combination with Kohayakawa. Kohayakawa teaches that the laser must be stopped and the eye

realigned before the surgery is resumed. It would have been obvious to the artisan of ordinary skill to employ the laser shut down device and method suggested by Kohayakawa in the combined device and method of Bille et al. ('340) and Bille et al. ('718), since this is required for the surgery to be successful in the case that the eye moves out of range, thus producing a device such as claimed.

**(10) Response to Argument**

Claims 1-5, 7, 9, 11, and 14 are clearly anticipated under 35 U.S.C. 102(b) over Bille et al. ('340).

Appellant argues, in essence, that Bille et al. ('340) does not read on the instant claims due to the limitation, contained in all independent claims, that the tissue structure involved is not a “natural” tissue structure. Appellant has provided no particular definition of what constitutes a “natural” tissue structure in the originally filed disclosure, thus the term must be given it’s broadest reasonable interpretation (see *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005), MPEP 2111). It is noted that the spots, which make up the grid of Bille et al ('340) are “small incisions created in the cornea 30 by the cutting laser” (see column 5, lines 37-38). Thus the uncut tissue remaining at the incision point is a “natural tissue structure” as claimed. Similarly, the uncut tissue which surrounds the incisions, and which provides the contrasting reflective property (relative to the incisions) that allows the electronics to track the intensity variation that the irregularity created by the incisions provide (note that it is the movement of the grid, which is a group of spots and the unincised tissue between them which is tracked) is also a “natural tissue structure” as claimed.

Claims 2-5, 7, 9, and 14 are argued as patentable solely based on the patentability of the claims from which they depend. However, as set forth above, the independent claims to which the final rejection was applied are not patentable, and thus their dependents cannot predicate patentability on the limitations of the independent claims. Thus these claims are unpatentable because where claims are not separately argued with any reasonable particularity, they stand or fall together with the claim with which they are grouped. In re Nielson, 816 F.2d 1567, 2 USPQ2d 1525 (Fed. Cir. 1987); In re Kaslow, 707 F.2d 1366, 1376, 201 USPQ 67, 70 (CCPA 1979).

Claims 1-7, 9, 11, and 14 are obvious under 35 U.S.C. 103 over Bille et al. ('340) in combination with Bille et al. ('718).

As above, appellant argues, in essence, that Bille et al. ('340) and Bille et al. ('718) do not read on the instant claims due to the limitation, contained in all independent claims, that the tissue structure involved is not a "natural" tissue structure. The arguments set forth above apply equally in this instance, and the are incorporated by reference. The examiner will not burden the record by repeating them here.

Claims 2-7, 9, 11, and 14 are argued as patentable solely based on the patentability of the claims from which they depend. However, as set forth above, the independent claims to which the final rejection was applied are not patentable, and thus their dependents cannot predicate patentability on the limitations of the independent claims. Thus these claims are unpatentable because where claims are not separately argued with any reasonable particularity, they stand or fall together with the claim with which they are grouped. In re Nielson, 816 F.2d 1567, 2

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USPQ2d 1525 (Fed. Cir. 1987); In re Kaslow, 707 F.2d 1366, 1376, 201 USPQ 67, 70 (CCPA 1979).

Claims 10 and 15 are obvious under 35 U.S.C. 103 over Bille et al. ('340) in combination with Bille et al. ('718) and Kohayakawa.

Claims 10 and 15 are argued as patentable solely based on the patentability of the claims from which they depend. However, as set forth above, the independent claims to which the final rejection was applied are not patentable, and thus their dependents cannot predicate patentability on the limitations of the independent claims. Thus these claims are unpatentable because where claims are not separately argued with any reasonable particularity, they stand or fall together with the claim with which they are grouped. In re Nielson, 816 F.2d 1567, 2 USPQ2d 1525 (Fed. Cir. 1987); In re Kaslow, 707 F.2d 1366, 1376, 201 USPQ 67, 70 (CCPA 1979).

***(11) Related Proceedings Appendix***

NONE

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**(12) Conclusion**

It is the examiner's firm opinion that the appealed claims are not patentable for the reasons argued above. Appellant has presented no convincing argument as to why the rejections set forth above are not obvious or proper. Therefore, it is respectfully submitted that the final rejection be affirmed

Respectfully submitted,

David Shay  
Primary Examiner, Art Unit 3735  
November 25, 2008

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